

## CLAIMS

What is claimed is:

- 5     1. A bandgap reference circuit for generating a reference voltage, comprising:
  - an operational amplifier;
  - a plurality of transistors connected to the operational amplifier;
  - a plurality of resistances connected to the plurality of transistors,

10     wherein a first and a second resistances of the plurality of resistances are used for voltage level shifting so that the operational amplifier can normally operate; and

      a plurality of bipolar junction transistors connected to the plurality of resistances.
- 15     2. The bandgap reference circuit of claim 1, wherein the operational amplifier comprises a plurality of transistors, and a bias circuit for outputting a bias current to the operational amplifier.
- 20     3. The bandgap reference circuit of claim 1, wherein the operational amplifier uses a N-type metal oxide semiconductor as an input differential pair.
- 25     4. The bandgap reference circuit of claim 1, wherein the operational amplifier comprises a first and a second input ends, and an output

end, the first input end is connected to the drain of the first transistor of the plurality of transistors, the second input end is connected to the drain of the second transistor of the plurality of transistors, and the output end is connected to the gates of the  
5 transistors.

5. The bandgap reference circuit of claim 4, wherein one end of the first resistance is connected to the first input end of the operational amplifier, and the second resistance is connected to the  
10 second input end of the operational amplifier.

6. The bandgap reference circuit of claim 1, wherein supply voltage is less than or equal to 1.5V.

15 7. A bandgap reference circuit for generating a reference voltage, comprising:  
an operational amplifier comprising a first and a second input ends, and an output end;  
a plurality of transistors connected to the operational amplifier;  
20 a plurality of resistances connected to the plurality of transistors wherein a first and a second resistances of the plurality of resistances are used for voltage level shifting so that the operational amplifier can normally operate; and  
a plurality of bipolar junction transistors respectively connected to  
25 the plurality of resistances;

- wherein the first input end of the operational amplifier is connected to the drain of the first transistor of the plurality of transistor, the second input end is connected to the drain of the second transistor of the plurality of transistors, and the output end 5 is connected to the gates of the transistors, and one end of the first resistance is connected to the first input end of the operational amplifier, and the second resistance is connected to the second input end of the operational amplifier.
- 10 8. The bandgap reference circuit of claim 7, wherein the operational amplifier comprises a plurality of transistors, and a bias voltage for generating and outputting a bias current to the operational amplifier.
- 15 9. The bandgap reference circuit of claim 7, wherein the operational amplifier uses a N-type metal oxide semiconductor as an input differential pair.
10. The bandgap reference circuit of claim 7, wherein the supply 20 voltage is less than or equal to 1.5V.